

Application S/N 10/649,756
Amendment Dated: November 1, 2005
Response to Office Action dated: July 25, 2005

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method comprising:

detecting a first signal from ~~a first electronic device that is located in proximity to~~ an egress portal, the first signal associated with indicating passage through the egress portal, wherein the egress portal resides within a cell of a wireless local area network and occupies a region that is smaller than the cell;

initiating, in response to detecting the first signal from the egress portal ~~first electronic device~~, a registration sequence with a second wireless communication system; and

conducting a present or a subsequent call via the second wireless communication system.

2. (Currently Amended) The method of claim 1, further comprising:

detecting a second signal from ~~a second electronic device that is located in proximity to~~ the egress portal; and

determining, based upon an order of receiving the first signal and the second signal, that a wireless device is moving from the coverage area of the wireless local area network to a coverage area of the second wireless communication system, wherein the step of initiating is performed in response to determining that the wireless device is moving from the coverage area of the wireless local area network to the coverage area of the second wireless communication system.

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3. (Previously Presented) The method of claim 1, wherein the second wireless communication system is a wide area network (WAN).
4. (Previously Presented) The method of claim 1, wherein the wireless local area network (WLAN) uses at least one protocol of IEEE Standard 802.11 and Bluetooth.
5. (Previously Presented) The method of claim 3, wherein the wide area network (WAN) uses code division multiple access (CDMA), wideband code division multiple access (WCDMA), time division multiple access (TDMA), global system for mobile communications (GSM) or integrated digital enhanced network (iDEN).
6. (Canceled)
7. (Canceled)
8. (Canceled)
9. (Currently Amended) The method of claim 1, wherein the egress portal first ~~electronic device~~ comprises a Bluetooth access point, an infrared transmitter, or an electronic security detection device.

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10. (Previously Presented) The method of claim 1, wherein the detecting a first signal step is performed in response to detecting a triggering event.
11. (Previously Presented) The method of claim 10, wherein the triggering event comprises detecting a wireless local area network border cell, detecting a degradation in signal quality, or detecting a start of a call.
12. (Currently Amended) A method comprising:
- detecting a triggering event, the triggering event comprising detecting a wireless local area network border cell, wherein the step of detecting a wireless local area network (WLAN) border cell comprises:
 - receiving status information from a WLAN access point, wherein the status information comprises a wide area network (WAN) information indicator; and
 - determining that a border cell indicator of the status information is set;
 - detecting, in response to detecting the triggering event, a first signal from an electronic device that is located in proximity to an egress portal, the first signal associated with indicating passage through the egress portal;
 - initiating, in response to detecting the first signal from the electronic device, a registration sequence with a wireless communication system; and
 - conducting one of a present and a subsequent call via the wireless communication system.
13. (Canceled)

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14. (Currently Amended) The method of claim ~~13~~ 12, further comprising:
- determining that the WAN information indicator is set;
 - obtaining available WAN information from the WLAN access point; and
 - using the available WAN information to conduct communications with a wide area network.
15. (Previously Presented) The method of claim 14, wherein the available WAN information comprises service providers, Radio Access Technologies (RAT's), channel information, timing information, or Pilot strength measurements.
16. (Original) The method of claim 15, wherein the available WAN information comprises information for at least two wide area networks.
17. (Currently Amended) A method comprising:
- determining that a wireless device, operating in a first communication system is detecting a wireless local area network inner border cell of the first communication system, wherein the inner border cell broadcasts an inner border cell indicator;
 - initiating a registration sequence with a second wireless communication system in response to determining that the wireless device is detecting the wireless local area network inner border cell;
 - detecting a second wireless local area network outer border cell, wherein the outer border cell broadcasts an outer border cell indicator;

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determining that the wireless device is moving from a coverage area of the first communications system to a coverage area of the second communications system in response to detecting the second wireless local area network outer border cell; and
conducting a present or a subsequent call via the second wireless communication system.

18. (Previously Presented) A method comprising:

detecting a triggering event;

detecting a signal from an egress portal in response to detecting a triggering event, the signal associated with indicating passage through the egress portal, wherein the egress portal resides within a cell of a wireless local area network and occupies a region that is smaller than the cell;

obtaining available wide area network information from a wireless local area network access point; and

scanning, in response to the detecting, for at least one wide area network listed in the available wide area network information.

19. (Previously Presented) The method of claim 18, wherein the triggering event comprises detecting a wireless local area network border cell, detecting a degradation in signal quality, or detecting a start of a call.

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20. (Previously Presented) A mobile communication device comprising:

at least two transceivers, each transceiver designed to operate on a separate wireless communications system, for transmitting and receiving wireless information;

a controller, communicatively coupled to each transceiver, for managing the operation of the mobile communication device;

a first wireless communications system stack, communicatively coupled to the controller, having instructions for communicating according to its respective protocol;

a second wireless communications system stack, communicatively coupled to the controller, having instructions for communicating according to its respective protocol;

a means for receiving signals from an egress portal, the signals associated with indicating passage through the egress portal; and

a handover manager, communicatively coupled to the controller, the first wireless communications system stack, the second wireless communications system stack, and the means for receiving signals from an egress portal, the handover manager for determining, in response to determining that the means for receiving signals from an egress portal has received at least one signal from the egress portal indicating passage therethrough, when to handover from a first wireless communication system to a second wireless communication system, wherein the egress portal resides within a cell of a wireless local area network and occupies a region that is smaller than the cell.

21. (Original) The mobile communication device of claim 20, wherein the at least two transceivers share common hardware and software.

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22. (Previously Presented) The mobile communication device of claim 20, wherein the means for receiving signals from an egress portal comprises a Bluetooth transceiver, an infrared sensor, or an electronic security detection device.

23. (Previously Presented) A mobile communication system comprising:
a structure having at least one entry/exit point;
at least one egress portal located at the at least one entry/exit point, the egress portal for transmitting signals to a mobile communications device, wherein the signals are associated with indicating passage through the at least one egress portal;
at least one cell of a wireless local area network communications system, the cell providing communication coverage within the structure, wherein the egress portal resides within the cell of the wireless local area network communications system and occupies a region that is smaller than the cell; and
at least one coverage cell of a second communications system, overlapping the at least one cell of the wireless local area network, for providing communication coverage outside the structure;
wherein at least one mobile subscriber device can be communicatively coupled with the at least one cell of the wireless local area network communications system, and the at least one cell of the second communications system, the device for determining, in response to determining that the device has received the signals from the at least one egress portal indicating passage therethrough, when to handover from one wireless communication system to the second wireless communication system.

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24. (Previously Presented) A mobile communication system of claim 23 further comprising:

at least one border cell of the wireless local area network communications system, the border cell located at the entry/exit point of the structure, providing a transition region between the wireless local area network communications system and the second communications system.

25. (Currently Amended) A computer readable medium comprising computer instructions for performing the steps of:

detecting a first signal from ~~a first electronic device that is located in proximity to~~ an egress portal, the first signal associated with indicating passage through the egress portal, wherein the egress portal resides within a cell of a wireless local area network and occupies a region that is smaller than the cell;

initiating, in response to detecting the first signal from the egress portal ~~first electronic device~~, a registration sequence with a second wireless communication system; and

conducting a present or a subsequent call via the second wireless communication system.

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26. (Currently Amended) The computer readable medium of claim 25, further comprising computer instructions for:

detecting a second signal from a ~~second electronic device that is located in proximity to the egress portal~~; and

determining, based upon an order of receiving the first signal and the second signal, that a wireless device is moving from the coverage area of the wireless local area network to a coverage area of the second wireless communication system, wherein the step of initiating is performed in response to determining that the wireless device is moving from a the coverage area of the wireless local area network to the coverage area of the second communication system.

27. (Currently Amended) The computer readable medium of claim 25, wherein the egress portal ~~first electronic device~~ comprises a Bluetooth access point, an infrared transmitter or an electronic security detection device.

28. (Previously Presented) The computer readable medium of claim 25, wherein the step of detecting a first signal is performed in response to detecting a triggering event.

29. (Previously Presented) The computer readable medium of claim 28, wherein the triggering event comprises detecting a wireless local area network border cell, detecting a degradation in signal quality, or detecting a start of a call.

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30. (Currently Amended) A computer readable medium comprising computer instructions for performing the steps of:

determining that a wireless device, operating in a first communication system is detecting a wireless local area network inner border cell of the first communication system, wherein the inner border cell broadcasts an inner border cell indicator;

initiating a registration sequence with a second wireless communication system in response to determining that the wireless device is detecting a wireless local area network inner border cell;

detecting a second wireless local area network outer border cell, wherein the outer border cell broadcasts an outer border cell indicator;

determining that the wireless device is moving from a coverage area of the first communications system to a coverage area of the second communications system in response to detecting the second wireless local area network outer border cell; and

conducting a present or a subsequent call via the second wireless communication system.

31. (Cancelled)

32. (Cancelled)

33. (Previously Presented) The method according to claim 1, wherein the first signal is only for indicating passage through the egress portal.

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34. (Previously Presented) The method according to claim 2, wherein the first signal comprises a wireless local area network signal substantially transmitted to an interior side of the egress portal and wherein the second signal comprises a wireless local area network signal substantially transmitted to an exterior side of the egress portal, the second signal being different from the first signal.

35. (Previously Presented) The method according to claim 17, wherein detecting the second wireless local area network border cell is done within a predetermined amount of time.

36. (Previously Presented) The computer readable medium according to claim 30, wherein detecting the second wireless local area network border cell is done within a predetermined amount of time.

37. (Previously Presented) The method according to claim 17, wherein conducting the present or the subsequent call via the second wireless communication system is performed in response to determining that the wireless device is moving from the coverage area of the first communications system to the coverage area of the second communications system.

38. (Previously Presented) The computer readable medium according to claim 30, wherein conducting the present or the subsequent call via the second wireless communication system is performed in response to determining that the wireless device

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is moving from the coverage area of the first communications system to the coverage area of the second communications system.

39. (Currently Amended) At an egress portal, a method to improve handover behavior of a mobile device between a wireless local area network (WLAN) containing a plurality of WLAN access points and a wireless wide area network (WAN) containing a plurality of WAN cells, the egress portal being located at an entry/exit point of the WLAN and not including a WLAN access point or a cell for a WAN, the method comprising:

conducting a call via a first network, the first network being either the WLAN or the WAN;

~~detecting, while conducting the call, a first signal from the egress portal by the egress portal a movement of the mobile device from a coverage area of the first network to a coverage area of a second network, the second network being the other one of the WLAN or the WAN;~~

~~initiating, in response the detecting the first signal from the egress portal, a registration sequence with the second network, the second network being the other one of the WLAN or the WAN.~~

~~determining, after the detecting the first signal from the egress portal, a movement from a coverage area of the first network to a coverage area of the second network; and~~

in response to detecting the movement of the mobile device, advising the mobile device to switch to the second network; and

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conducting, in response to advising the mobile device to switch to the second network ~~the determining the movement from the coverage area of the first network to the coverage area of the second network~~, the call via the second network.

40. (New) The method according to claim 1, further comprising conducting a present or prior call via the wireless local area network.

41. (New) The method according to claim 12, further comprising conducting a present or prior call via the wireless local area network.

42. (New) The method according to claim 17, wherein the inner border cell is substantially present within the interior of a structure and the outer border cell is substantially present outside the structure.